

# PATENT ABSTRACTS OF JAPAN

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(54) FINGERPRINT AUTHENTICATION DEVICE AND METHOD

*Abstract*

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a fingerprint authentication device and method for accurately identifying a principal.

SOLUTION: This fingerprint authentication device 1 is provided with a fingerprint sensor 2 for detecting fingerprints. The fingerprint sensor 2 generates the two-dimensional image of the projecting and recessing patterns of the surface of a substance placed on a detection face 3, and outputs the two-dimensional image as the fingerprint data based on the sensing signal obtained from a sensing element arranged in a matrix state, for example. Furthermore, the fingerprint sensor 2 detects the sensing signal of a sensing element in a fixed time until the detection face 3 is depressed with a fixed pressure, and outputs it as time-sequential motion data. The fingerprint authentication device 1 collates the fingerprint data with the motion data to identify a principal.



## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

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[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of

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3. In the drawings, any words are not translated.

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CLAIMS

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[Claim(s)]

[Claim 1]

The sensor which detects the pattern of the irregularity of the front face of the detected material concerned which the detected material was placed to the detection side and placed to the detection side concerned,

A feature detection means of operation to detect the description of the detected material concerned of operation based on time amount change of the output level of the pattern of the irregularity of the front face of the detected material concerned detected by the above-mentioned sensor at the time of the above-mentioned detected material being placed to the above-mentioned detection side,

A registration information storage means by which the above-mentioned description of operation and fingerprint when putting a finger on the above-mentioned detection side are registered for every user, him, the user who collated the pattern of the irregularity of the front face of the detected material detected by the above-mentioned sensor, and the fingerprint which are registered into the above-mentioned registration information-storage means, and placed the above-mentioned detected material while having collated the description of the detected material detected by the above-mentioned feature-detection means of operation of operation, and the description of operation which are registered into the above-mentioned registration information-storage means, when a detected material is placed to the detection side of the above-mentioned sensor, -- the authentication means which attests Preparation \*\*\*\*\* equipment.

[Claim 2]

The above-mentioned feature detection means of operation is detecting time amount change of the relative output of a from near each point of the above-mentioned detection side.

Fingerprint authentication equipment according to claim 1 by which it is characterized.

[Claim 3]

Two or more feature detection fields of operation are set to the above-mentioned sensor on the above-mentioned detection side,

The above-mentioned feature detection means of operation is detecting the description of the above-mentioned detected material of operation based on the output level of each feature detection field of operation.

Fingerprint authentication equipment according to claim 1 by which it is characterized.

[Claim 4]

The above-mentioned feature detection field of operation is a rectangle-like.

Fingerprint authentication equipment according to claim 3 by which it is characterized.

[Claim 5]

The above-mentioned rectangle-like feature detection field of operation is set to the above-mentioned sensor so that it may be located in the periphery section of the finger when putting a finger on the above-mentioned detection side.

Fingerprint authentication equipment according to claim 4 by which it is characterized.

[Claim 6]

The above-mentioned feature detection field of operation is a beltlike thing.

Fingerprint authentication equipment according to claim 3 by which it is characterized.

[Claim 7]

The band-like above-mentioned feature detection field of operation is set to the above-mentioned sensor so that it may be arranged at the predetermined spacing over the whole surface of the above-mentioned detection side.

Fingerprint authentication equipment according to claim 6 by which it is characterized.

[Claim 8]

The above-mentioned feature detection means of operation is detecting the description of the above-mentioned detected material of operation based on time amount change of the output level of the above-mentioned sensor after the above-mentioned detected material approaches the above-mentioned detection side and fluctuation of the output level of the

Claim

above-mentioned sensor is started, until a predetermined pressure joins the detection side concerned and fluctuation of the output level of the above-mentioned sensor is completed.

Fingerprint authentication equipment according to claim 1 by which it is characterized.

[Claim 9]

The above-mentioned feature detection means of operation is detecting a time interval after the above-mentioned detected material's approaches the above-mentioned detection side and fluctuation of the output level of the above-mentioned sensor is started, until a predetermined pressure's joins the detection side concerned and fluctuation of the output level of the above-mentioned sensor is completed as the above-mentioned description of operation.

Fingerprint authentication equipment according to claim 8 by which it is characterized.

[Claim 10]

The above-mentioned feature detection means of operation is detecting the output level of the above-mentioned sensor in the time amount of arbitration after the above-mentioned detected material's approaches the above-mentioned detection side and fluctuation of the output level of the above-mentioned sensor is started, until a predetermined pressure's joins the detection side concerned and fluctuation of the output level of the above-mentioned sensor is completed as the above-mentioned description of operation.

Fingerprint authentication equipment according to claim 8 by which it is characterized.

[Claim 11]

Two or more feature detection fields of operation are set to the above-mentioned sensor on the above-mentioned detection side,

The output level from each feature detection field of operation in the time amount of arbitration after the above-mentioned detected material approaches the above-mentioned detection side and fluctuation of the output level of the above-mentioned sensor is started, until a predetermined pressure joins the detection side concerned and fluctuation of the output level of the above-mentioned sensor is completed is detected, and the correlation of each output level is detected as the above-mentioned description of operation.

Fingerprint authentication equipment according to claim 8 by which it is characterized.

[Claim 12]

The above-mentioned sensor is detecting the electrostatic capacity to two or more [ on the above-mentioned detection side ], and detecting the pattern of the irregularity of the front face of the detected material put on the detection side concerned.

Fingerprint authentication equipment according to claim 1 by which it is characterized.

[Claim 13]

The above-mentioned sensor is that the rear-face side of the above-mentioned detection side is supported by the elastic member.

Fingerprint authentication equipment according to claim 1 by which it is characterized.

[Claim 14]

The sensor which detects the pattern of the irregularity of the front face of the detected material concerned which the detected material was placed to the detection side and placed to the detection side concerned,

A feature detection means of operation to detect the description of the detected material concerned of operation based on time amount change of the output level of the pattern of the irregularity of the front face of the detected material concerned detected by the above-mentioned sensor at the time of the above-mentioned detected material being placed to the above-mentioned detection side,

A registration information storage means by which the above-mentioned description of operation when putting a finger on the above-mentioned detection side is registered for every user,

him, the user who collated with the description of the detected material detected by the above-mentioned feature detection means of operation of operation, and the description of operation registered into the above-mentioned registration information storage means, and placed the above-mentioned detected material when a detected material was placed to the detection side of the above-mentioned sensor, -- the authentication means which attests

Preparation \*\*\*\*\* equipment.

[Claim 15]

The above-mentioned feature detection means of operation is detecting time amount change of the relative output of a from near each point of the above-mentioned detection side.

Authentication equipment according to claim 14 by which it is characterized.

[Claim 16]

him who used the fingerprint by the sensor which detects the pattern of the irregularity of the front face of the detected material placed to the detection side -- the fingerprint authentication approach which attests -- setting

The fingerprint of the finger concerned is beforehand registered into the description of operation and list which were generated based on time amount change of the output level of the pattern of the irregularity of the front face of the

detected material concerned detected by the above-mentioned sensor when putting a finger on the above-mentioned detection side for every user,  
him, the user who collated the pattern of the irregularity of the front face of the detected detected material, and the fingerprint registered, and placed the above-mentioned detected material while collating the description of the detected material concerned of operation, and the description of operation registered, when a detected material was placed to a detection side, -- attesting

The fingerprint authentication approach by which it is characterized.

[Claim 17]

As time amount change of the output level of the pattern of the irregularity of the front face of the above-mentioned detected material, time amount change of the relative output of a from near each point of the above-mentioned detection side is detected.

The fingerprint authentication approach according to claim 16 by which it is characterized.

[Claim 18]

the sensor which detects the pattern of the irregularity of the front face of the detected material placed to the detection side -- him -- the authentication approach which attests -- setting

The description of operation generated based on time amount change of the output level of the pattern of the irregularity of the front face of the detected material concerned detected by the above-mentioned sensor when putting a finger on the above-mentioned detection side is beforehand registered for every user,

him, the user who collated the description of the detected material concerned of operation, and the description of operation registered, and placed the above-mentioned detected material when a detected material was placed to a detection side, -- attesting

The authentication approach by which it is characterized.

[Claim 19]

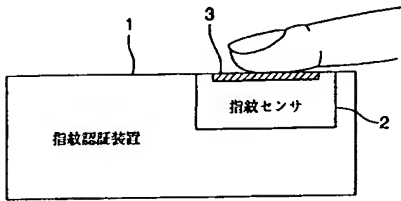
As time amount change of the output level of the pattern of the irregularity of the front face of the above-mentioned detected material, time amount change of the relative output of a from near each point of the above-mentioned detection side is detected.

The authentication approach according to claim 18 by which it is characterized.

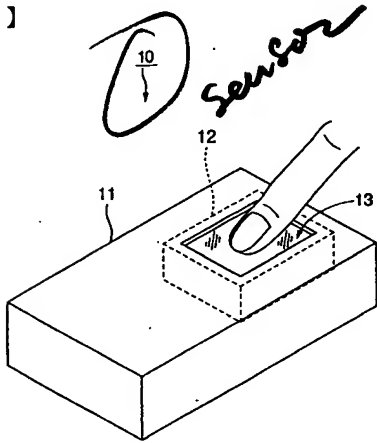
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[Translation done.]

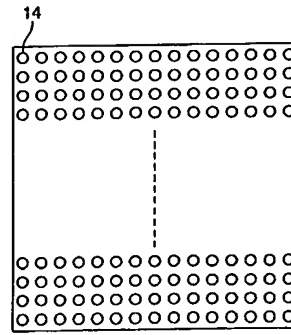
【図 1】



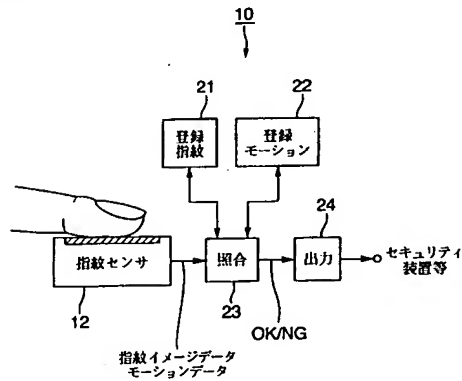
【図 2】



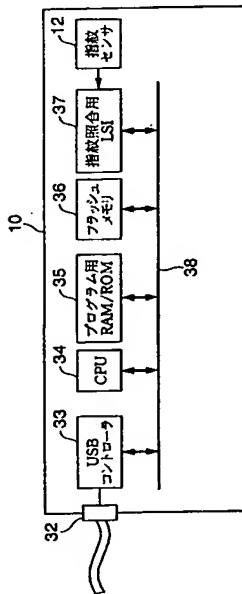
【図 3】



【図 4】



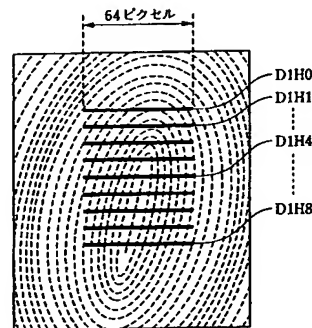
【図 5】



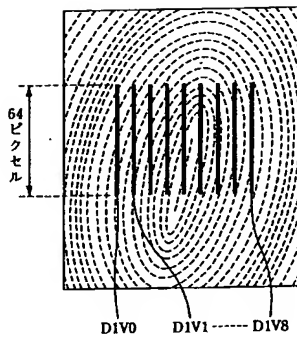
【図 6】

ID	水平方向登録データD1H0	X0, Y0
	水平方向登録データD1H1	X0, Y1
	...	...
	水平方向登録データD1H4	X1, Y4
	...	...
	水平方向登録データD1H8	X0, Y8
	垂直方向登録データD1V0	X0, Y0
	垂直方向登録データD1V1	X1, Y0
	...	...
	垂直方向登録データD1V4	X4, Y0
	...	...
	垂直方向登録データD1V8	X8, Y0

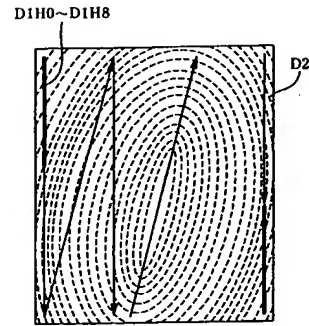
【図 7】



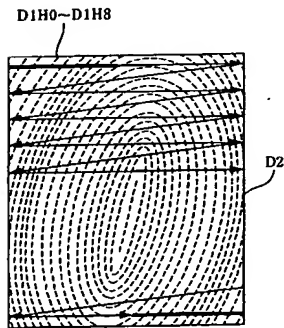
【図 8】



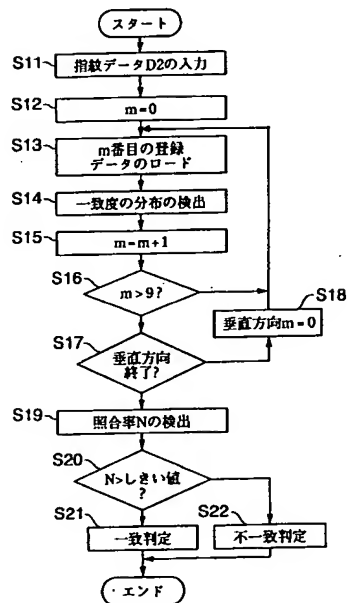
【図 10】



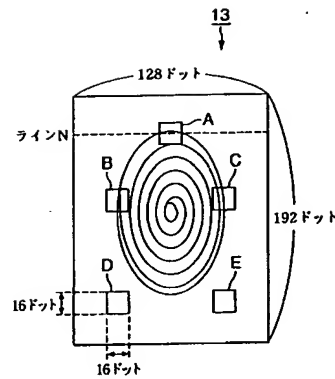
【図 9】



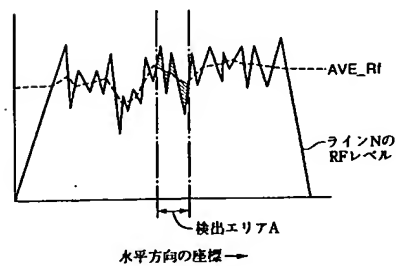
【図 11】



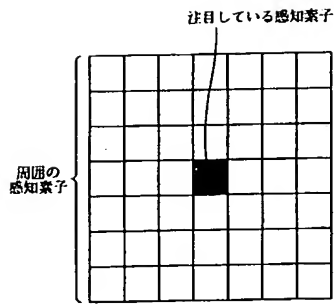
【図 12】



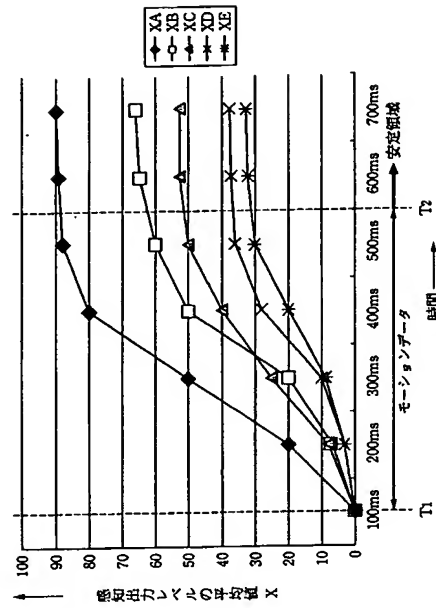
【図 13】



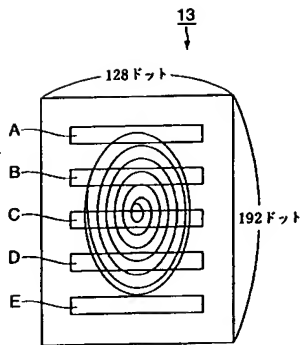
【図 14】



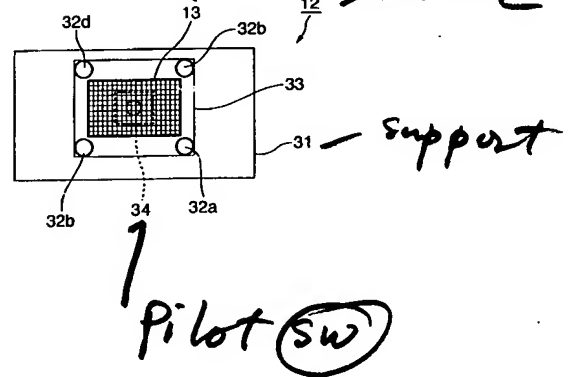
【図 15】



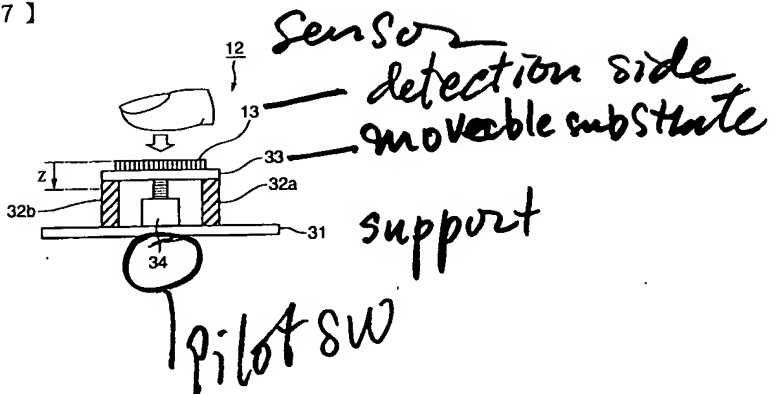
【図 16】



【図 18】



【図 17】



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Fターム(参考) 5B043 AA09 BA02 DA04 GA02 GA17  
5L096 AA06 BA15 HA02 HA07 JA11 JA18